IN THE CLAIMS:

1. (Original) A broadcasting apparatus comprising:

a transmitting means for transmitting an interactive content as a data carousel over a span of a scheduled broadcasting time period; and

a transmission control means for controlling the transmitting means so as to (a) start pre-transmitting the interactive content a predetermined time before the start of the scheduled broadcasting time period, and (b) repeatedly transmit a cache message that instructs a receiving apparatus to cache the interactive content into a storage unit in the receiving apparatus while the transmitting means pre-transmits the interactive content over a span of the predetermined time period.

2. (Original) The broadcasting apparatus of Claim 1, wherein

the scheduled broadcasting time period spans from a time when the receiving apparatus is to start reproducing the interactive content to a time when the receiving apparatus is to end reproducing the interactive content.

3. (Original) The broadcasting apparatus of Claim 1, wherein

the transmission control means controls the transmitting means so as to transmit a reproduction message that conveys that the interactive content cached in the storage unit in the receiving apparatus should be reproduced over the span of the scheduled broadcasting time period.

4. (Original) The broadcasting apparatus of Claim 3, wherein

the reproduction message (a) specifies a time when a reproduction should start and (b) includes an instruction to start the reproduction at the specified time, and

the transmission control means repeatedly transmits the reproduction message while the transmitting means pre-transmits the interactive content over the span of the predetermined time period.

5. (Original) The broadcasting apparatus of Claim 3, wherein

the reproduction message includes an instruction to start a reproduction immediately after the reproduction message is received, and

the transmission control means instructs the transmitting means to transmit the reproduction message at the start of the scheduled broadcasting time period.

6. (Original) The broadcasting apparatus of Claim 3, wherein

the transmission control means includes:

a schedule storage unit for storing a time 1, a time 2, and a time 3 which correspond to the interactive content, the time 1 being a time when the transmitting means starts pre-transmitting the interactive content the predetermined time before the start of the scheduled broadcasting time period, the time 2 being the start of the scheduled broadcasting time period, and the time 3 being the end of the scheduled broadcasting time period;

a data carousel control unit for controlling the transmitting means to transmit the interactive content over a span of the time 1 to the time 3 stored in the schedule storage unit; and

a message control unit for instructing the transmitting means to repeatedly transmit the cache message over a span of the time 1 to the time 2 stored in the schedule storage unit, and instructing the transmitting means to transmit the reproduction message at the time 2.

7. (Original) The broadcasting apparatus of Claim 1, wherein

the transmitting means further broadcasts a video content over the span of the scheduled broadcasting time period, the video content containing video and audio data, and

the interactive content is closely related to the video content.

8. (Original) The broadcasting apparatus of Claim 7, wherein

the video content is a commercial and is synchronized with the interactive content.

9. (Original) The broadcasting apparatus of Claim 7, wherein

the video content is one of a movie, a drama, a sports broadcast program, and a news broadcast program, and the interactive content is either an introduction or a detail of the video content.

10. (Original) The broadcasting apparatus of Claim 7, wherein

the transmission control means controls the transmitting means so as to transmit a reproduction message that conveys that the interactive content cached in the storage unit in the receiving apparatus should be reproduced over the span of the scheduled broadcasting time period.

11. (Original) The broadcasting apparatus of Claim 10, wherein

the reproduction message (a) specifies a time when a reproduction should start and (b) includes an instruction to start the reproduction at the specified time, and

the transmission control means repeatedly transmits the reproduction message while the transmitting means pre-transmits the interactive content over the span of the predetermined time period.

12. (Original) The broadcasting apparatus of Claim 10, wherein

the reproduction message includes an instruction to start a reproduction immediately after the reproduction message is received, and

the transmission control means instructs the transmitting means to transmit the reproduction message at the start of the scheduled broadcasting time period.

13. (Original) The broadcasting apparatus of Claim 10, wherein

the transmission control means includes:

a schedule storage unit for storing a time 1, a time 2, and a time 3 which correspond to the interactive content, the time 1 being a time when the transmitting means starts pre-transmitting the interactive content the predetermined time before the start of the scheduled broadcasting time period, the time 2 being the start of the scheduled broadcasting time period, and the time 3 being the end of the scheduled broadcasting time period;

a data carousel control unit for controlling the transmitting means to transmit the interactive content over a span of the time 1 to the time 3 stored in the schedule storage unit; and

a message control unit for instructing the transmitting means to repeatedly transmit the cache message over a span of the time 1 to the time 2 stored in the schedule storage unit, and instructing the transmitting means to transmit the reproduction message at the time 2.

14-18. (Cancelled)

19. (Original) A broadcasting system including a broadcasting apparatus and a receiving apparatus, wherein

the broadcasting apparatus comprises:

a transmitting means for transmitting an interactive content as a data carousel over a span of a scheduled broadcasting time period; and

a transmission control means for controlling the transmitting means so as to (a) start pre-transmitting the interactive content a predetermined time before the start of the scheduled broadcasting time period, and (b) repeatedly transmit a cache message that instructs a receiving apparatus to cache the interactive content into a storage unit in the receiving apparatus while the transmitting means pre-transmits the interactive content over a span of the predetermined time period, and

the receiving apparatus comprises:

a receiving means for receiving the interactive content transmitted as the data carousel;

a reproducing means for reproducing the received interactive content; and

a reception control means for controlling the reproducing means so as to (a) cache the interactive content into a storage unit, not reproducing the interactive content, while the

interactive content is received before the start of a scheduled broadcasting time period, and (b) reproduce the interactive content during the scheduled broadcasting time period.

20. (Original) A broadcasting method of allowing a broadcasting apparatus to transmit a data carousel, comprising:

a first transmitting step for pre-transmitting an interactive content as the data carousel, starting a predetermined time before the start of a scheduled broadcasting time period;

a cache message transmitting step for repeatedly transmitting a cache message that instructs a receiving apparatus to cache the interactive content into a storage unit in the receiving apparatus while the interactive content is pre-transmitted in the first transmitting step; and

a second transmitting step for broadcasting the interactive content as the data carousel during the scheduled broadcasting time period.

21. (Original) The broadcasting method of Claim 20, wherein

the scheduled broadcasting time period spans from a time when the receiving apparatus is to start reproducing the interactive content to a time when the receiving apparatus is to end reproducing the interactive content.

22. (Original) The broadcasting method of Claim 21 further comprising:

a reproduction message transmitting step for transmitting a reproduction message that instructs the receiving apparatus to reproduce the interactive content cached in the storage unit when a transmission starts at some time in either the first transmitting step or the second transmitting step.

23. (Original) A computer readable medium for use with a computer, storing a computer program that allows a broadcasting apparatus to transmit a data carousel, the computer program allowing a computer in the broadcasting apparatus to execute:

a first transmitting step for pre-transmitting an interactive content as the data carousel, starting a predetermined time before the start of a scheduled broadcasting time period;

a cache message transmitting step for repeatedly transmitting a cache message that instructs a receiving apparatus to cache the interactive content into a storage unit in the receiving apparatus while the interactive content is pre-transmitted in the first transmitting step and

a second transmitting step for broadcasting the interactive content as the data carousel curing the scheduled broadcasting time period.

24 (Original) A computer program that allows a broadcasting apparatus to transmit a data carousel, the computer program allowing a computer in the broadcasting apparatus to execute:

a first transmitting step for pre-transmitting an interactive content as the data carousel, starting a predetermined time before the start of a scheduled broadcasting time period;

a cache message transmitting step for repeatedly transmitting a cache message that instructs a receiving apparatus to cache the interactive content into a storage unit in the receiving apparatus while the interactive content is pre-transmitted in the first transmitting step; and

a second transmitting step for broadcasting the interactive content as the data carousel during the scheduled broadcasting time period.